



# Naval Energy Forum

## Program Highlights

October 14-15, 2009  
Hilton McLean Tysons Corner  
McLean, Virginia

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## WELCOME NAVAL ENERGY FORUM PARTICIPANTS

The Office of Naval Research and Task Force Energy are co-hosting the first Naval Energy Forum. On behalf of all Sailors, Marines, and civilians who comprise our great Navy and Marine Corps, welcome to this important event and thank you for your valuable time as we collaborate on energy – a topic critical to our naval capabilities and national security.

Energy is an essential component in the protection of America's vital interests in an interconnected and uncertain world. As first responders, the U.S. Navy and Marine Corps rely on readily available, reliable sources of energy to perform a variety of missions. For now, America depends on foreign sources of fuel, the security of the regions from where it is sourced and the security of the oceans it must transit.

The Department of the Navy's emerging energy strategy aims to address the challenges of meeting U.S. naval forces' energy requirements while reducing the risk associated with fuel tether, volatile oil prices, and non-secure supplies. At this forum, we will explore these issues and solutions from strategic, technical and cultural perspectives across four key themes: *energy security, energy efficiency, environmental stewardship and energy science and technology*.

Over the next two days, you will hear directly from the Secretary of the Navy, the Chief of Naval Operations, and the Commandant of the Marine Corps on naval energy needs and the challenges ahead. Other key leaders from inside and outside our department will offer their perspectives to increase both awareness and dialogue on this critical national priority. We trust that you will find this forum to be a unique opportunity to engage with naval leadership, subject matter experts, presenters and other participants to initiate action and solutions.

Again, thank you for coming and thank you for your continued commitment to the brave men and women charged with defending our great nation.

Sincerely,

NEVIN P. CARR, JR.  
Rear Admiral, U.S. Navy  
Chief of Naval Research

PHILIP H. CULLOM  
Rear Admiral, U.S. Navy  
Director, Fleet Readiness/Task Force Energy

# SECRETARY OF THE NAVY

## Ray Mabus



Ray Mabus is the 75th United States Secretary of the Navy. As Secretary, he leads America's Navy and Marine Corps and is responsible for an annual budget in excess of \$150 billion and almost 900,000 people.

The secretary of the Navy is responsible for conducting all the affairs of the Department of the Navy, including recruiting, organizing, supplying, equipping, training, and mobilizing. Additionally, he oversees the construction, outfitting, and repair of naval ships, equipment and facilities, and is responsible for the formulation and implementation of policies and programs that are consistent with the national security policies and objectives

established by the President and the Secretary of Defense.

Prior to joining the administration of President Barack Obama, Mabus served in a variety of top posts in government and the private sector. In 1988, Mabus was elected Governor of Mississippi. As the youngest governor of Mississippi in more than 100 years at the time of his election, he stressed education and job creation. He passed B.E.S.T. (Better Education for Success Tomorrow), one of the most comprehensive education reform programs in America, and was named one of Fortune Magazine's top ten education governors. He was appointed Ambassador to the Kingdom of Saudi Arabia for the Clinton Administration in 1994. During his tenure as Ambassador, a crisis with Iraq was successfully averted and Saudi Arabia officially abandoned the boycott of United States businesses that trade with Israel. He also was Chairman and CEO of Foamex, a large manufacturing company, which he led out of bankruptcy in less than 9 months paying all creditors in full and saving equity. Prior to becoming Governor he was elected State Auditor of Mississippi and served as a Surface Warfare Officer in the U.S. Navy aboard the cruiser USS Little Rock.

Secretary Mabus is a native of Ackerman, Miss., and received a Bachelor's Degree from the University of Mississippi, a Master's Degree from Johns Hopkins University, and a Law Degree from Harvard Law School. He has been awarded the U.S. Department of Defense Distinguished Public Service Award, the U.S. Army's Distinguished Civilian Service Award, the Martin Luther King Social Responsibility Award from the King Center in Atlanta, the National Wildlife Federation Conservation Achievement Award, the King Abdul Aziz Award from the Kingdom of Saudi Arabia, and the Mississippi Association of Educators' Friend of Education Award.



# CHIEF OF NAVAL OPERATIONS

## Admiral Gary Roughead



Admiral Roughead is a 1973 graduate of the United States Naval Academy.

Among his six operational commands, Roughead was the first officer to command both classes of Aegis ships, having commanded USS Barry and USS Port Royal.

As a Flag officer, Roughead commanded Cruiser Destroyer Group 2, the George Washington Battle Group; and U.S. Second Fleet/NATO Striking Fleet Atlantic and Naval Forces North Fleet East.

Ashore, he served as commandant, United States Naval Academy, the Department of the Navy's Chief of Legislative Affairs, and as deputy commander, U.S. Pacific Command.

Roughead is one of only two officers to have commanded the Fleets in the Pacific and Atlantic, commanding the U.S. Pacific Fleet and Joint Task Force 519, as well as Commander, U.S. Fleet Forces, where he was responsible for ensuring Navy forces were trained, ready, equipped and prepared to operate around the world, where and when needed.

Roughead's awards include the Defense Distinguished Service Medal, Navy Distinguished Service Medal, Defense Superior Service Medal, Legion of Merit, Meritorious Service Medal, Navy Commendation Medal, Navy Achievement Medal, and various unit and service awards.

Roughead became the 29th Chief of Naval Operations on 29 September 2007.

# COMMANDANT OF THE MARINE CORPS

## General James Conway



General James T. Conway was born in Walnut Ridge, Arkansas and is a graduate of Southeast Missouri State University. He was commissioned in 1970 as an infantry officer. His company grade assignments included multiple platoon and company commander billets with both the 1st and 2nd Marine Divisions; Executive Officer of the Marine Detachment aboard the USS Kitty Hawk (CVA-63); series and company commander at the Marine Corps Recruit Depot in San Diego; aide to the Commanding General, and Director, Sea School.

As a field grade officer, he commanded two companies of officer students and taught tactics at The Basic School; he also served as operations officer for the 31st Marine Amphibious Unit to include contingency operations off Beirut, Lebanon; and as Senior Aide to the Chairman, Joint Chiefs of Staff. Promoted to Lieutenant Colonel, he was reassigned to the 2nd Marine Division as Division G-3 Operations Officer before assuming command of 3rd Battalion, 2nd Marines in January 1990.

He commanded Battalion Landing Team 3/2 during Operations Desert Shield and Desert Storm. Selected for colonel, he served as the Ground Colonels' Monitor, and as Commanding Officer of The Basic School. His general officer duties included Deputy Director of Operations, J-34, Combating Terrorism, Joint Staff, Washington, D.C.; and President, Marine Corps University at Quantico, Va. After promotion to Major General, he assumed command of the 1st Marine Division. In November 2002, Major General Conway was promoted to Lieutenant General and assumed command of the I Marine Expeditionary Force. He commanded I Marine Expeditionary Force during two combat tours in Iraq. In 2004, he was reassigned as the Director of Operations, J-3, Joint Staff, in Washington, D.C.

General Conway graduated with honors from The Basic School, the U.S. Army Infantry Officers Advanced Course, the Marine Corps Command and Staff College and the Air War College.

General Conway's personal decorations include the Defense Distinguished Service Medal with palm, Navy Distinguished Service Medal, Legion of Merit, Defense Meritorious Service Medal, Meritorious Service Medal with two Gold Stars, Navy Commendation Medal, Navy Achievement Medal and the Combat Action Ribbon.

# CHIEF OF NAVAL RESEARCH

## Rear Admiral Nevin P. Carr



Rear Admiral Nevin Carr has spent his Navy career at sea in cruisers and destroyers, deploying to the Mediterranean Sea, Black Sea, Indian Ocean, Persian Gulf, North and South Atlantic, South Pacific, Baltic, Caribbean and Red Seas. He commanded USS Arleigh Burke (DDG 51) and USS Cape St. George (CG 71), winning Battle E's and Golden Anchors in both tours. While in command of Cape St. George, the ship participated in combat operations in support of Operation Iraqi Freedom in both the European and Central Command theaters.

Ashore, Carr has served in the office of the Secretary of Defense where he worked on the Arleigh Burke, Ticonderoga and Seawolf programs and several Ballistic Missile Defense programs. He later served in the office of the Chief of Naval Operations as requirements officer for the Aegis Cruiser and Destroyer programs, and was executive assistant to the Commander, U.S. Fleet Forces Command. Following promotion to flag rank in 2006 he was assigned as deputy director of Surface Warfare for Combat Systems and Weapons, and later as deputy assistant Secretary of the Navy (International Programs) and director, Navy International Programs Office.

Carr graduated in 1979 from the U.S. Naval Academy with a Bachelor of Science Degree in Naval Architecture. He received his Master of Science Degree in Operations Research from the Naval Postgraduate School and completed the Advanced Management Program at Harvard Business School.

In December 2008, he became the 22nd chief of Naval Research, with additional duties as director, Test and Evaluation and Technology Requirements.

# DIRECTOR, TASK FORCE ENERGY

## Rear Admiral Philip Hart Cullom



Rear Admiral Philip Cullom has spent a career at sea in cruisers, destroyers, frigates, carriers, and amphibious assault ships, deploying to the Persian Gulf, Indian Ocean, North & South Atlantic, Western & South Pacific, Arctic, Mediterranean, Caribbean, Baltic, and Red Seas. He commanded USS MITSCHER (DDG 57) during the Kosovo crisis, earning the Battle "E" and Golden Anchor awards. As Commander, Amphibious Squadron 3, he served as the first Sea Combat Commander for Expeditionary Strike Group 1 in support of Operations Enduring and Iraqi Freedom from 2003 – 2004.

Ashore he has served in various staff, policy, & strategy positions: Branch Head for Strategy and Policy (N513), Defense Resource Manager (JCS J8), Head of Surface Nuclear Officer Programs (PERS 41N), and Chief of Staff for Commander, Second Fleet/Striking Force Atlantic. He has also served twice at the White House; as Special Assistant to the Director, Office of Management & Budget, and as Director, Defense Policy/Arms Control at the National Security Council.

Following selection to Flag rank in 2006, he served as Director of Deep Blue (N3/N5), Director for Strategy & Policy (N5SP), Commander of the Eisenhower and George Washington Strike Groups as Carrier Strike Group 8, and currently as Director, Fleet Readiness Division (N43)/Task Force Energy.

Cullom graduated with distinction from the U.S. Naval Academy with a Bachelor of Science Degree in Physics. He also holds a Master of Business Administration with distinction from Harvard Business School.

# About this Event

The primary objective of the Naval Energy Forum is to introduce the emerging Department of the Navy (DON) Energy Strategy and gain additional insight from dialogue with participants.

Together we will explore energy issues and solutions from strategic, technical and cultural perspectives across four key themes: energy security, energy efficiency, environmental stewardship and energy science and technology.

The structure of this forum is designed to provide multiple opportunities for engagement and dialogue. First, the Plenary room agenda explores each theme (two per day) and offers both keynote presenters and interactive panel discussions.

Second, we invite you to visit the Information Exchange where the main themes are defined and you can speak directly to DON subject matter experts about topics in each theme.

Third, be sure to visit each of the four breakout rooms to learn more about specific energy related programs DON is pursuing (upstairs: Aviation and Maritime; downstairs: Shore, Energy Efficiency, Alternative Fuels and Expeditionary). In each room you will not only be able to speak to DON subject matter experts about the details of each program, but also have opportunities to discuss potential collaborations.

Likewise, we asked to hear from you. Many participants took advantage of the opportunity to request a Pitch-A-Principal appointment and to staff a Poster Session, where they will have a chance to tell us all more about what they do in energy and discuss ideas for naval application.

Lastly, be sure to submit your white papers in response to the “ONR/TFE Challenge” before departing the event. If your submission meets a naval energy need, you could receive \$100k of seed funding (see the forum website at [www.onr.navy.mil](http://www.onr.navy.mil) for more details).

A few of the anticipated outcomes of this event include:

- Buy-in with stakeholders for the emerging DON Energy Strategy
- Development of DON energy initiatives that promote mission readiness and align with national energy priorities
- Collaboration around DON energy goals and needs
- Network of energy partners to provide ideas and solutions
- Discussion of culture change considerations



# About Task Force Energy

The Chief of Naval Operations Admiral Gary Roughead established the Navy's Task Force Energy (TFE) in 2008. The purpose of TFE is to produce a Navy Energy Strategy that treats energy as a strategic resource, thereby optimizing energy in our planning, programming, budgeting, execution, and acquisition processes. The goal is to achieve greater Navy-wide energy security by increasing energy conservation, energy efficiency, and alternative energy use. As a Task Force, TFE is an adhoc organization consisting of seven working groups from across the Navy: Maritime, Aviation, Expeditionary, Shore, Fuels, Strategic Impacts, and Environment. The Navy's comprehensive approach is focused on improving tactical and shore energy security, and it includes physical and strategic security, research and development, and policy and doctrine.

## Three themes emerged from TFE's work:

### Assure Mobility

- **Energy security** is critical to mission success. We will safeguard our energy infrastructure and shield ourselves from a volatile energy supply.

### Expand Tactical Reach

- **Energy efficiency** increases mission effectiveness and enhances combat capability. We will extend our tactical range and minimize operational risks, which will save time, money, and lives.

### Green Our Footprint

- **Environmental stewardship** protects mission capabilities. Investment in environmentally-friendly technologies afloat and ashore reduces greenhouse gas emissions, lessens dependence on fossil fuels, and reduces risk from commercial supply vulnerabilities. We are all responsible for promoting a healthy environment for a sustainable future.

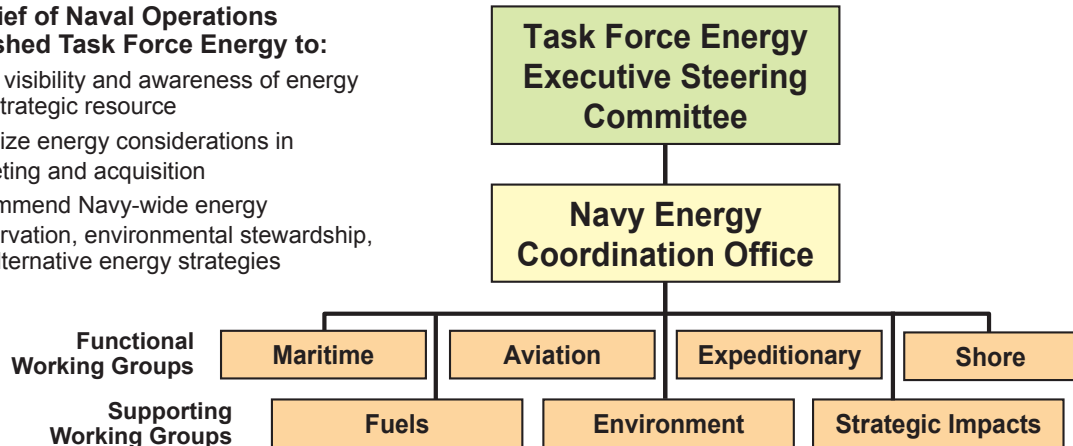
Additionally, energy science and technology (S&T) will play an important role in enabling DON to achieve its energy goals and objectives, and TFE has valued collaboration with the Office of Naval Research (ONR). ONR invests in a wide range of energy S&T projects which will increase naval capabilities through advancements in fuels, power generation, storage, distribution, and power loads.

While science and technology investments will provide many solutions, naval leadership recognizes the importance of policy changes. These changes must ensure everyone considers energy use in all stages of their acquisition, tactical, and shore planning.

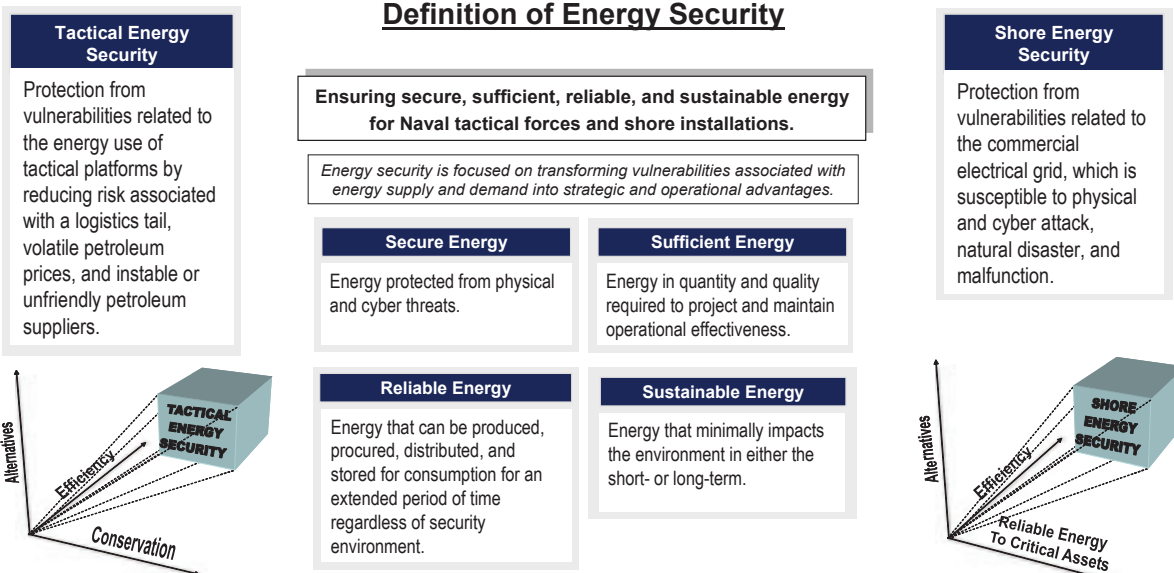
# Navy Task Force Energy

## The Chief of Naval Operations established Task Force Energy to:

- Raise visibility and awareness of energy as a strategic resource
- Optimize energy considerations in budgeting and acquisition
- Recommend Navy-wide energy conservation, environmental stewardship, and alternative energy strategies



## Definition of Energy Security

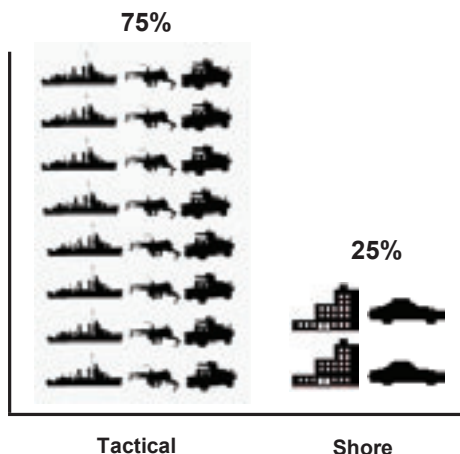


## Key Energy Mandates

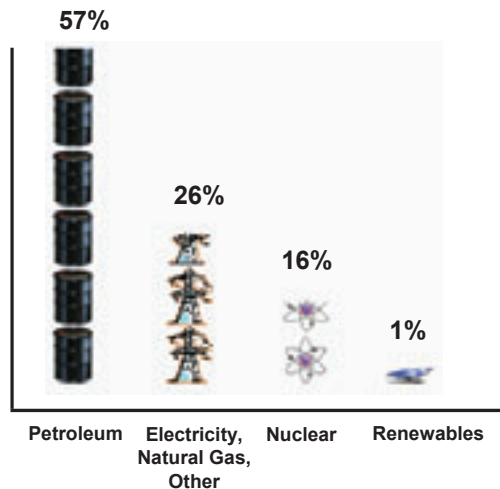
<ul style="list-style-type: none"> <li>• Energy Policy Act of 2005 <ul style="list-style-type: none"> <li>✓ 7.5% Renewable Electricity by FY13</li> <li>✓ 100% Electric Metering by FY12</li> <li>✓ 100% Alternative Fuel Vehicles</li> </ul> </li> <li>• Energy Independence and Security Act of 2007 <ul style="list-style-type: none"> <li>✓ 55% Reduction in New Facility Petroleum Use by FY10</li> <li>✓ 2% Reduction in Non-Tactical Vehicle Petroleum Use Annually to FY15</li> <li>✓ 100% Natural Gas and Steam Metering by FY16</li> <li>✓ 25% Facility Energy Audits Annually</li> <li>✓ 3% Reduction in Facility Energy Intensity Annually to FY15</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• National Defense Authorization Act of 2007 <ul style="list-style-type: none"> <li>✓ 25% Renewable Electricity by FY25</li> </ul> </li> <li>• Executive Order 13423—"Strengthening Federal Environmental, Energy, and Transportation Management" <ul style="list-style-type: none"> <li>✓ 55% Reduction in New Facility Petroleum Use by FY10</li> <li>✓ 100% Natural Gas and Steam Metering by FY16</li> <li>✓ 25% Energy Audits Annually</li> <li>✓ 15% Sustainable Design by FY15</li> </ul> </li> </ul>
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# Naval Energy Facts & Figures

DON Energy: Shore vs. Tactical



DON Energy by Type



General DON Figures

**Personnel:**

Active Duty (Navy):	330,498
Ready Reserve (Navy):	109,299
On Deployment:	42,682
Active Duty (USMC):	209,000
On Deployment:	36,161

Civilian (DON): 193,268

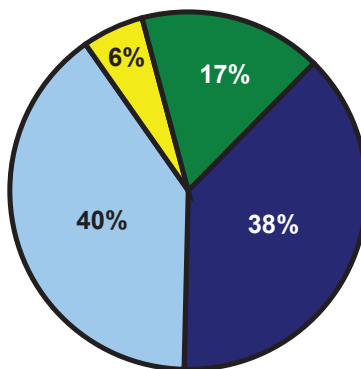
**Tactical Platforms:**

Ships (Navy):	286
On Deployment:	114
Aircraft (Navy):	3700+

Petroleum Consumption by Enterprise

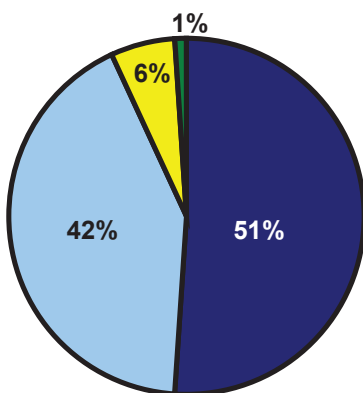
Department of the Navy

FY08: 38.5 M bbls



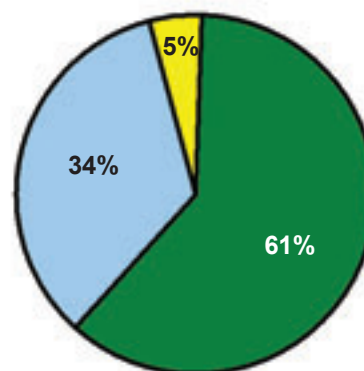
Navy

FY08: 28.5 M bbls



Marine Corps

FY08: 10 M bbls



Naval Energy in Perspective

Average Car:  
18.5 gallons per tank



- Today: \$48.47 to fill
- Summer 2008: \$76.04 to fill

Navy DDG-51:  
450,000 gallons per tank



- Today: \$643,500 to fill
- Summer 2008: \$1,827,000 to fill

# Agenda · Day I

October 14th (morning)

Energy Security

Time	Topic	Presenters
0750	<b>Welcome</b>	Dr. Walter Jones - <i>Executive Director, Office of Naval Research</i>
0800-0830	<b>Naval Energy Security - Strategic Implications</b>	RADM Philip Cullom - <i>Task Force Energy</i>
0830-0930	<b>Energy Security Panel - Primary Question: What are our energy needs? What strategic actions are necessary to increase naval energy security?</b>	RADM Cullom - <i>Moderator</i> Panel Includes: LtGen Willie Williams (USMC), RADM Joe Leidig (J5), RADM Jeff Lemmons (OPNAV N3/5), VADM (ret) Dennis McGinn (CNA MAB)
0930-1000	<b>Break – Visit Breakout Rooms</b>	<i>Information Exchange and Poster Session Areas</i>
1000-1030	<b>Secretary of the Navy – The Energy Strategy</b>	The Honorable Ray Mabus
1030-1130	<b>Energy Security Inter-agency Panel</b> <i>Primary Question: How does naval energy security contribute to increasing America's energy security?</i>	RADM Cullom - <i>Moderator</i> Panel includes: Kevin Hurst (White House OSTP), Phil Moeller (Federal Energy Regulatory Commission), Al Shaffer (OSD), Barbara Tyran (EPRI), Albert Davis (DOE), Kim Huntley (DESC)
1145-1300	<b>Lunch</b>	

October 14th (afternoon)

Energy Efficiency

Time	Topic	Presenters
1230-1300	<b>Chief of Naval Operations – Energy in the Maritime Strategy</b>	Admiral Gary Roughead
1330-1430	<b>Enhanced Combat Capability through Energy Efficiencies Panel</b> <i>Primary Question: How do we get more combat capability out of energy?</i>	Dr. Dan Sudnick, <i>Naval Energy Office - Moderator</i> Panel Includes: RDML Terry Kraft (N88), RDML(s) Gregory Nosal (N81), RDML(s) Ann Phillips (N86), RDML(s) Kevin Scott (N85), Carla Lucchino (HQMC)
1430-1445	<b>Break – Visit Breakout Rooms</b>	<i>Information Exchange and Poster Session Areas</i>
1445-1515	<b>Commandant of the Marine Corps</b> <i>Lightening the Load</i>	General James Conway
1515-1615	<b>Concepts to Reality: Bridging the Gap Panel - Primary Question: What actions are we taking to transition concepts (e.g. technical, policy, and cultural) into enhanced combat capability?</b>	Chris Tindal, <i>Naval Energy Office - Moderator</i> Panel includes: Mr. Pat Tamburrino (N4B), RDML Thomas Eccles (NAVSEA 05), RDML Donald Gaddis (NAVAIR 05), Mike Boyd (HQMC), Richard Kidd (DOE)
1615-1730	<b>Break – Visit Breakout Rooms</b>	<i>Information Exchange and Poster Session Areas</i>
1730-1900	<b>Evening reception</b>	

Please Note: Breakout Rooms are open continuously from 0800 to 1700





# Agenda · Day 2

October 15th (morning)

Environmental Stewardship

Time	Topic	Presenters
0750	<b>Remarks and Recap</b>	Dr. Walter Jones - <i>Executive Director, Office of Naval Research</i>
0800-0830	<b>Energy and the Environment: A Naval Imperative</b>	Mr. Roger Natsuhara- <i>Acting Assistant Secretary of the Navy (Installations &amp; Environment)</i>
0830-0900	<b>Greenhouse Gases, Climate Change, and U.S. Energy Policy</b> <i>Navy's Current and Emerging Challenges</i>	Mr. John Quinn - <i>Deputy Director, OPNAV N45</i>
0900-0945	<b>Break – Visit Breakout Rooms</b>	<i>Information Exchange and Poster Session Areas</i>
0945-1045	<b>Enhancing Combat Capability While Reducing Carbon Footprint Industry Panel</b> <i>Primary Question: What actions (e.g. technological, cultural, or acquisitions) could DON pursue to better enable industry to assist in pursuit of this objective?</i>	Nat'l Defense Industrial Association Dean Tarbet (DRS), Ian Copeland (Bechtel, President New Tech), Dr. Tom Wallace (BAE, VP/GM), Tim Garnett (Avascent Group Partner), Amr ElSawy (Noblis President/CEO), Geoff Prosch (Johnson Controls, Fed Relations)
1045-1145	<b>“Greening DON,” A Catalyst for Change Inter-agency Panel</b> <i>Primary Question: How can technological advances that support naval environmental protection contribute to national defense and broader national environmental goals?</i>	RDML Herman Shelanski, OPNAV N45- <i>Moderator</i> Panel includes: MajGen Eugene Payne (HQMC I&L), RADM David Titley (Task Force Climate Change), Dr. Jeff Marqusee (Strategic Environment R&D), Mike Hutton (DOE), Joe Gott (NAVFAC), Sharon Burke (Center for a New American Security)
1145-1300	<b>Lunch</b>	

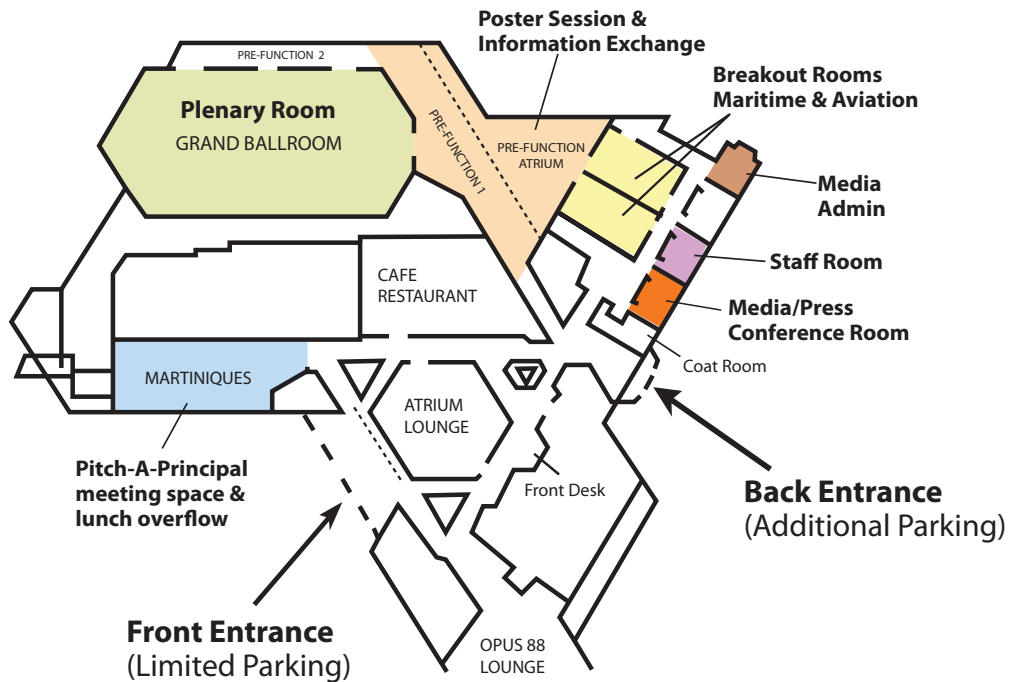
October 15th (afternoon)

Energy Science & Technology

Time	Topic	Presenters
1230-1300	<b>Environmental Stewardship and Energy Innovation</b>	Dr. Steven Koonin - <i>Under Secretary for Science, Department of Energy</i>
1330-1400	<b>Shaping the Future Force - Partnership Opportunities in Energy S&amp;T</b>	RADM Nevin Carr - <i>Chief of Naval Research</i>
1400-1500	<b>Energy Innovations and Federal Collaboration Opportunities Inter-agency Panel</b> – <i>Primary Question: How can energy S&amp;T generate ‘game-changing’ capabilities for naval forces?</i>	RADM Nevin Carr - <i>Moderator</i> Panel Includes: Barbara McQuiston (DARPA), Dale Gardner (DOE), Dr. Rath (NRL), Dr. Rich Carlin (ONR), Jim Lasswell (USMC MCWL), Dr. Nabil Adam (DHS)
1500	<b>Wrap-Up</b>	RADM Carr and RADM Cullom provide wrap-up
1515 -1600	<b>Break – Visit Breakout Rooms</b>	<i>Information Exchange and Poster Session Areas</i>

Please Note: Breakout Rooms are open continuously from 0800 to 1600

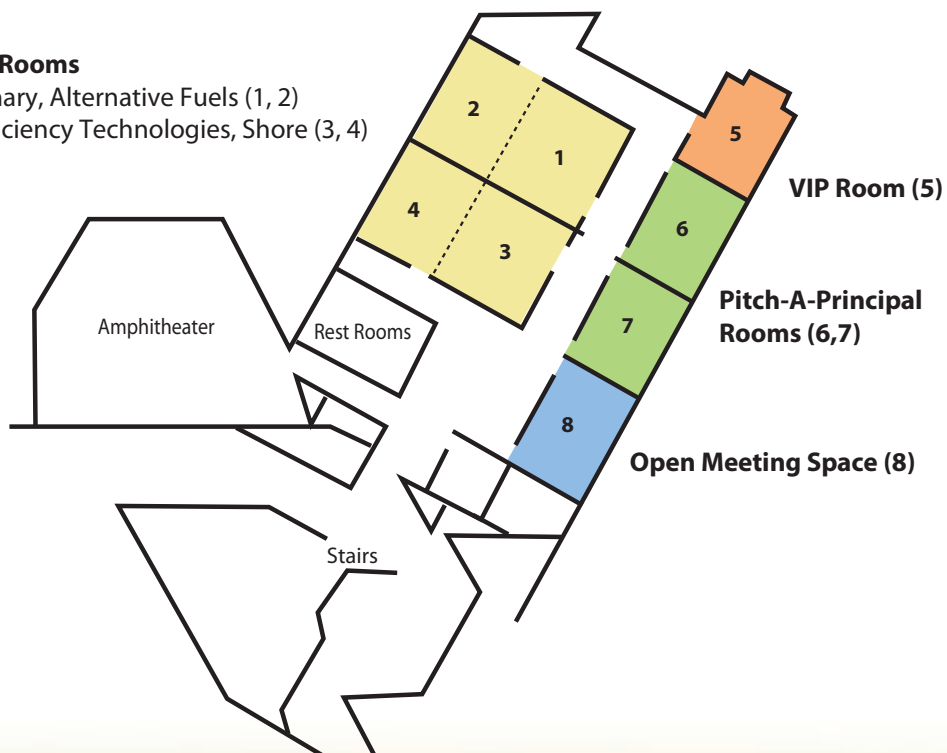
## HILTON McLEAN TYSONS CORNER - LOBBY LEVEL



## HILTON McLEAN TYSONS CORNER - LOWER LEVEL




### Breakout Rooms

Expeditionary, Alternative Fuels (1, 2)  
Energy Efficiency Technologies, Shore (3, 4)



# Notes:

## The First Naval Energy Forum Will

-  Introduce and advance awareness around Department of the Navy's energy strategy and initiatives
-  Present energy program challenges and discuss possible technology solutions
-  Learn and share feedback on energy use, efficiency and environmental stewardship

